

ABSTRACT OF THE DISCLOSURE

A method and apparatus for designing low-order linear-phase IIR filters is disclosed. Given an FIR filter, the method utilizes a new Krylov subspace projection method, called the rational Arnoldi method with
5 adaptive orders, to synthesize an approximated IIR filter with small orders. The method is efficient in terms of computational complexity. The synthesized IIR filter can truly reflect essential dynamical features of the original FIR filter and indeed satisfies the design specifications. In particular, the linear-phase property is still remained in the passband.

10